medium at different pixel locations to form dots of different dot size or dot density at different pixel locations on the receiver medium; and

wherein in recording image data of a same multitone image data value and of a same resolution on different receiver media types, in response to the first signal related to receiver media type and the second signal related to the type of ink and the third signal related to printer resolution for recording the image data, the drop volumes deposited at pixel locations on one receiver medium of one receiver media type by the nozzle are different than the drop volumes deposited at pixel locations on another receiver medium of a second receiver media type by the nozzle and wherein receiver media type and ink type and printer resolution are used in determining drop volumes used in recording.

REMARKS

By this amendment, Claims 1-36 and 38-48 are in the application. Reconsideration of the patentability of all the claims is respectfully requested in view of the following remarks.

The rejection of many of the claims under 35 USC 112, second paragraph, is respectfully traversed in that the term "reference raster" is defined in the specification, see page 13, and with this definition should render this term definite in accordance with the reasonableness requirements of 35 USC 112. Usually rejections, or more typically objections, involving lack of antecedent basis are based upon an observation that the 1st reference to a term employs the word "the" instead of "a". Applicants' attorney has reviewed the use of the objected to term throughout the claims and there appears to be appropriate use of the term "a reference raster" upon 1st introduction of the term and thereafter use of "the reference raster" subsequently. Thus, it is believed that the Examiner's objections relate to objection of the term "reference raster" itself which as noted above is adequately defined in the specification. In view of this it is respectfully submitted that the claim taken as a whole is reasonably definite to one of ordinary skill of the art under the reasonableness requirements of 35 USC 112, second paragraph.

The rejection of claim 15 under 35 USC 112, second paragraph, is also submitted to be overcome by the amendment to claim 15 which deletes the objected to

term.

In view of the above remarks, it is respectfully submitted that all the claims meet the requirements of definiteness under 35 USC 112.

Claims 1 and 15 have been amended to be patently distinguishable over the Yamada et al. reference. Claim 1 has been amended to define an ink jet printer apparatus for printing an image on a receiver medium. At least one nozzle is connected to a supply of ink and movable relative to the receiver medium during **a print pass**. The controller is responsive to image data representing the image and to a first signal related to receiver medium type, to a second signal related to ink type, to a third signal related to printing resolution for generating a fourth signal **for determining for said one nozzle** an ink droplet volume to be deposited in each of plural pixel locations on the receiver medium by that one nozzle **during said print pass**. At least some of the fourth signals determine at least three different drop volumes including a no drop decision. Different drop table values are provided that provide different combinations of receiver medium types, ink types and printer resolutions. An actuator associated with said one nozzle and responsive to the fourth signals controls said one nozzle to deposit during said print pass respective drop volumes that are deposited in accordance with said fourth signals so that said one nozzle prints at least three different drop volumes (including no drops) at different pixel locations on the receiver medium **during said print pass** to print the image on the receiver medium.

Thus, claim 1 and similarly claim 15 emphasize that **at least three different volumes** (including no drops) of ink are capable of being deposited by **the one nozzle during a print pass**. It is respectfully submitted that this patentably distinguishes claims 1 and 15 from the apparatus and method disclosed by Yamada et al. In Yamada et al. a determination is made at the start of each scan or pass as to droplet size to be printed by each of two printheads. Thus, all the nozzles in one printhead during any particular scan can only print droplets of two ink volumes in size (including no droplet). Yamada et al. thus achieves gray level printing using two different printheads and cannot do so with a single nozzle. In this regard the Examiner is referred to Page 16, lines 15-17 of Yamada et al. wherein it notes "a [DROP] command is issued (step S1703) to set the droplet size for one printhead (A) and another [DROP] command is issued (step S1703) to set the droplet size for the other

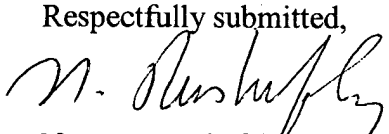
printhead (B)." The Examiner is also referred to page 29, Table 3 wherein for the identified DROP command such command is to select Droplet Size of Head A for the 1st scan and similarly to select droplet size for that of Head B during such scan.

Newly submitted claims 47 and 48 are claims 1 and 15 but amended to emphasize that for drops deposited by one nozzle that such nozzle prints at least three different drop volumes (including no drops) to different pixel locations on the receiver medium at a printing resolution defined by a third signal. It is submitted that claims 47 and 48 are patentably distinguishable over Yamada et al. in that as noted in Yamada et al. two different printheads are required to print at different resolutions on the receiver medium. See in this regard the abstract of Yamada et al. Thus, Yamada et al. teaches away from employing a single nozzle to print two different print resolutions on the receiver medium in response to the various signals called for in claims 47 and 48.

Support for the amendments may be found for example and easily noted at Figure 10 (a) wherein the Examiner will note that a reference raster pass table in response to an input of multitone level signal of four different levels (0-3) provides a drop volume index of at least 4 values (A, C, E and F) whose respective drop volumes may be noted in Figure 10 (e) as being 0, 16 picoliters, 48 picoliters, and 64 picoliters. The Examiner will further note that the specification starting at p. 19 last paragraph and continuing on page 20 discloses that for different resolutions, in particular 300 DPI or 600 DPI, that depending upon banding pass mode at least three droplet volume sizes are deposited by a single nozzle since two or four bits per pixel are used to define at least three droplet volume sizes.

For the above reasons, it is submitted that all the claims in the application are now patentable over the prior art and that the application may be advanced to issue as a patent. If, contrary to expectations, questions shall remain the Examiner is invited to call the undersigned to resolve them.

Respectfully submitted,



Norman Rushefsky,
Registration No. 25,606

Telephone: (585) 588-4529
Facsimile (585) 477-4646

"Version with Markings to Show Changes Made"

IN THE CLAIMS

The claims have been amended as follows:

1. (Twice Amended) An ink jet printer apparatus for printing an image on a receiver medium comprising:

at least one nozzle connected to a supply of ink and movable relative to the receiver medium during a print pass;

a controller, responsive to image data representing the image and to a first signal related to receiver media type and to a second signal related to ink type and to a third signal related to printing resolution, for generating a respective fourth signal for determining for said one nozzle an ink drop volume to be deposited at each of plural pixel locations on the receiver medium by that said one nozzle during said print pass, at least some of the fourth signals determining at least three different drop volumes including a no drop decision, the controller generating a table of drop volume related values for printing the image data in response to the first signal, the second signal and the third signal, with different table values being provided for different combinations of receiver media types, ink types and printer resolutions;

an actuator associated with said one nozzle and responsive to said fourth [signal] signals for controlling said one nozzle to deposit during said print pass at [a] respective pixel [location] locations [a] respective drop [volume] volumes [to be] that are deposited in accordance with said fourth [signal] signals so that [the printer] said one nozzle prints at least three different drop volumes including no drops at different pixel locations on the receiver medium during said print pass to print the image on the receiver medium.

15. (Twice Amended) A method of operating an ink jet printer apparatus for printing an image on a receiver medium, the method comprising:

providing a print head having at least one nozzle that is movable relative to the receiver medium during a print pass;

generating a first signal related to one of plural receiver media types selectable for recording the image data, a second signal related to one of plural types of inks selectable for recording the image data and a third signal related to one of plural printer resolutions selectable for recording the image data;

recording image data of the image during said print pass by depositing from said one nozzle at least three different ink drop volumes including no ink drop on the receiver medium at different pixel locations to form dots of different dot size or dot density at different pixel locations; and

wherein in recording image data of a same multitone image data value on different receiver media types, in response to the first signal related to receiver media type and the second signal related to the type of ink and the third signal related to printer resolution for recording the image data, the drop volumes deposited on one receiver medium of one receiver media type by the nozzle are different than the drop volumes deposited on another receiver medium of a second receiver media type by the nozzle and wherein receiver media type and ink type and printer resolution are used in determining drop volumes used in recording [, with different table values being provided for different combinations of receiver media types, ink types and printer and printer resolutions;].

The following new claims have been added:

47. An ink jet printer apparatus for printing an image on a receiver medium comprising:

at least one nozzle connected to a supply of ink;

a controller, responsive to image data representing the image and to a first signal related to receiver media type and to a second signal related to ink type and to a third signal related to printing resolution, for generating a fourth signal for determining for said one nozzle an ink drop volume to be deposited at each of plural pixel locations on the receiver medium by that one nozzle at the printing resolution defined by said third signal, at least some of the fourth signals determining at least three different drop volumes including a no drop decision for printing by said one nozzle at said resolution, the controller generating a table of drop volume related values for printing the image data in response to the first signal, the second signal and

the third signal, with different table values being provided for different combinations of receiver media types, ink types and printer resolutions;

an actuator associated with said one nozzle and responsive to said fourth signals for controlling said one nozzle to deposit at respective pixel locations respective drop volumes that are deposited in accordance with said fourth signals so that said one nozzle prints at least three different drop volumes including no drops at different pixel locations on the receiver medium and at said resolution to print the image on the receiver medium.

48. A method of operating an ink jet printer apparatus for printing an image on a receiver medium, the method comprising:

providing a print head having at least one nozzle;

generating a first signal related to one of plural receiver media types selectable for recording the image data, a second signal related to one of plural types of inks selectable for recording the image data and a third signal related to one of plural printer resolutions selectable for recording the image data;

recording image data of the image at the one resolution by depositing by said one nozzle at least three different ink drop volumes including no ink drop on the receiver medium at different pixel locations to form dots of different dot size or dot density at different pixel locations on the receiver medium; and

wherein in recording image data of a same multitone image data value and of a same resolution on different receiver media types, in response to the first signal related to receiver media type and the second signal related to the type of ink and the third signal related to printer resolution for recording the image data, the drop volumes deposited at pixel locations on one receiver medium of one receiver media type by the nozzle are different than the drop volumes deposited at pixel locations on another receiver medium of a second receiver media type by the nozzle and wherein receiver media type and ink type and printer resolution are used in determining drop volumes used in recording.